

**What is claim d is:**

1. A multi-layer connector comprising a plastic housing, terminals and a metal housing; and characteristics thereof being:

the plastic housing is consisted of a plastic body and a terminal

5 support; wherein, a front side of the plastic body is disposed with five

analog connecting openings having identical dimensions

corresponding with those of signal connecting nuts, a rear side of the

plastic body is disposed with sliding channels, an upper portion of the

plastic housing is provided with a fastening mechanism for joining with

10 the terminal support, an interior of the terminal support is divided into

various compartments, a lower portion of the terminal support is

disposed with terminal openings for penetrating through terminal pins,

and an upper rear portion of the terminal support is formed with a

fastening mechanism for corresponding with the fastening mechanism

15 of the plastic body;

the plurality of terminals is inserted into appropriate positions within

the plastic housing, with front ends thereof inserted and located into

the sliding channels and main bodies thereof placed into different

compartments divided in the terminal support;

20 the metal housing is for covering the aforesaid assembled structure,

and has openings for penetrating the signal connecting nuts to an exterior; and to assemble the aforesaid structure, the terminal main bodies are inserted into the terminal support, the terminal front ends are inserted into the sliding channels in the plastic body, the positioning pins at the lower portion of the plastic body are inserted into the positioning openings at the lower portion of the terminal support, the fastening mechanisms of the terminal support and the plastic body are wedged and fastened with each other, and the assembled structure is covered and fixed using the metal housing.

2. The multi-layer connector in accordance with claim 1, wherein each signal connecting nut is a hollow hat-shaped body having a skirt portion at a periphery thereof, and a round orifice at a center portion thereof for inserting signal terminals.

3. The multi-layer connector in accordance with claim 1, wherein:

the metal housing is formed by bending and stamping a thin metal plate; a front panel thereof has five openings with sizes and dimensions corresponding to those of the signal connecting nuts; an upper portion of the front panel is provided with a folding line for joining with an upper panel; the front panel is bent at two sides thereof for forming a U shape, and is reserved with recesses at edges

thereof; the front panel further has a bending plate and a fixing plate at two lower edges thereof, respectively; the bending plates are for clamping and fixing the plastic housing, and the fixing plates are for stabilizing the entire connector at a circuit board; the upper panel is provided with cover plates bent in a downward direction for corresponding with the recesses at the edges of the front panel, and folded with a folding line at an appropriate position thereof so as to fold the upper panel into an L shape; and the upper panel further has folding plates at upper edges thereof for clamping and fixing the plastic housing.

4. The multi-layer connector in accordance with claim 1, wherein the fastening mechanism of the terminal support has a shape corresponding to that of a front end of the fastening mechanism, and appears as a shape having a protruding edge; and the fastening mechanism is inserted into a gap at a front end via a lower portion of the fastening mechanism of the plastic body.